

REMARKS

Claims 1-14 are pending in this application. By this Amendment, claim 7 is amended to correct a clerical error.

Applicant appreciates the courtesies shown to Applicant's representative by Examiner Kim in the December 20, 2005 personal interview. Examiner Kim indicated that she would not be preparing an Interview Summary. However, according to MPEP §713.04, an Examiner must complete an Interview Summary for PTOL-413 for each interview where a matter of substance has been discussed during the interview. If the undersigned does not receive the Interview Summary, it will be assumed that the Patent Office is waiving this internal procedural requirement in the present application.

As required, Applicant's separate record of the substance of the interview is provided herewith. Specifically, the summary of the interview is incorporated into the following remarks.

In view of the foregoing amendments and the following remarks, reconsideration of this application is respectfully requested.

I. Information Disclosure Statement

The Patent Office indicated that legible copies of the references were not filed with the November 14, 2003 Information Disclosure Statement (IDS). However, as the Examiner has confirmed consideration (i.e., initialed next to) the references listed on the Form PTO-1449, it is clear that the Examiner located and considered these references. Specifically, as the references were previously submitted, as legible copies, in parent application 09/986,422, the Examiner located the copies of the references in the parent file and considered the references.

In addition, according to MPEP §609, Applicants are not required to re-provide legible copies of the references if the references were cited by or submitted to the Office in a

prior application, provided that the prior application is properly identified in the IDS and is relied upon for an earlier filing date under 35 U.S.C. §120, and the IDS submitted in the earlier application complies with 37 C.F.R. §1.98(a)-(c). In this case, Applicants properly identified the parent application in the November 14, 2003 IDS by stating that "the references were cited by or submitted to the Office in parent application No. 09/986,422, filed November 8, 2001, which is relied upon for an earlier filing date under 35 U.S.C. §120." Thus, there was no need for Applicants to re-provide legible copies of the references along with the November 14, 2003 IDS.

The Examiner's consideration of the references by initialing of the PTO-1449 is acknowledged.

II. Acknowledgement of Priority Documents

Applicants note that the Patent Office has failed to acknowledge receipt of the certified copies of the foreign priority documents filed in the parent application 09/986,422 on January 16, 2002. Thus, Applicants respectfully request the Patent Office to acknowledge receipt of the certified copy of the priority document in the next communication.

III. Rejection under 35 U.S.C. §102(b)

Claims 7-8 were rejected under 35 U.S.C. §102(b) as allegedly being anticipated by U.S. Patent No. 1,459,845 ("Mitchell"). This rejection is respectfully traversed.

As discussed during the interview, Mitchell teaches a screening machine and a screen cloth therefor. Specifically, Mitchell teaches screen cloth for use in screening machines and screening machines for screening finely divided or crushed materials. See Mitchell, page 1, lines 9-13. Clearly, as discussed during the interview claim 7 distinguishes over Mitchell because nowhere does Mitchell teach or suggest a solid-liquid separation as required in claim 7. Mitchell teaches screening that does not involve a solid-liquid separation wherein liquid is separated from a mixture consisting of solids and liquid as recited in claim 7.

Furthermore, as shown in Figures 2 and 3 and as recited in claim 7, a filter element is set against the underside of the filter cloth, which is comprised of substantially parallel yarns that are thicker than the other yarns of the filter cloth. As discussed during the interview, Mitchell teaches a vibrator 45 comprising transmitting plates 75, the upper ends of which are of wood and are adapted to transmit vibrations from the vibrator 45 to the screen cloth 25 so that high frequency vibrations are set up in the screen cloth. See Mitchell, page 4, lines 103-119. In addition, Mitchell teaches that the transmitting plates 75 are positioned transversely to the direction of the heavy wires 25a, whereby the heavy wires increase the efficiency of the vibrations. See Mitchell, page 4, lines 115-121 and page 1, lines 99-101. Thus, Mitchell only teaches that a vibrator 45 comprising transmitting plates 75 is arranged under the screen. See Mitchell, page 4, lines 103-126. Nowhere does Mitchell teach or suggest any filtering element against which the underside of the screen cloth is set. Thus, as discussed during the interview, the structure of a screen cloth as taught by Mitchell and the structure of the filter cloth as recited in claim 7 are different.

Moreover, the structure of the filter cloth recited in claim 7, an embodiment of which is shown in Figure 2 of the specification, has thicker yarns 8 being placed to the underside of the filter cloth, and the thicker yarns 8 are placed at predetermined intervals and are not symmetrical. As shown in Figures 2 and 7 of Mitchell, Mitchell discloses heavy wires 17, 25a interwoven in the middle portion of the screen cloth 25 that are placed symmetrically. Clearly, the heavy wires 17 in Mitchell and the thicker yarns as recited in claim 7 are placed differently. Thus, the structure of the filter cloth as recited in claim 7 is different from the structure of the screen cloth as taught by Mitchell.

As discussed during the interview, Claim 8, as amended, recites the filter cloth is arranged such that the channels in the bottom of the cloth are directed according to a structure of the filtering element. Mitchell, on the other hand, teaches that the thicker reinforcing yarns

are in the middle portion of the screen cloth 25, and thus no channels are provided at the underside of the screen between the thicker yarns in Mitchell. Because there are no channels in the bottom of the screen in Mitchell, no channels can be directed to any direction, in contrast to the channels in the bottom of the cloth that are directed according to a structure of the filtering element as recited in claim 8. In addition, as discussed extensively above, Mitchell does not teach or suggest any filtering element against which the underside of the filter cloth is set as claimed. Thus, claim 8 further distinguishes over Mitchell because Mitchell does not teach or suggest the structure as recited in claim 8.

For the foregoing reasons, Applicants respectfully submit that Mitchell fails to anticipate the subject matter of claims 7 and 8. Reconsideration and withdrawal of this rejection are respectfully requested.

IV. Rejections under 35 U.S.C. §103(a)

A. Rejection over Baltzer in view of Mitchell

Claims 1, 3-4, 9 and 11-13 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Patent No. 5,944,197 ("Baltzer") in view of Mitchell. This rejection is respectfully traversed.

As for claims 1 and 11, Baltzer teaches to superimpose a top screen 52, a second screen 54 and a support screen 56, and finally bonding the screens to a perforated metal plate 58. Thus, as discussed during the interview, the structure having three different screens bonded to the metal plate as taught by Baltzer does not need any thicker yarns to improve the stiffness of the structure as taught by Mitchell. In addition, Baltzer teaches solid-liquid separation, whereas Mitchell teaches screening of different size particles. Thus, there is no motivation to combine Baltzer with Mitchell to achieve the featured elements as recited in claims 1 and 11.

Regarding claim 3, as discussed during the interview, Baltzer teaches to calendar the cloth in order to lock the intersections of the warp and weft yarns. During calendaring, the force of pressing rollers compresses the intersections whereby they will be flattened by the rollers. See Baltzer, column 5, lines 5-11. As discussed during the interview, in case there were thicker yarns at the underside of the cloth of Baltzer, the cloth would probably be damaged under the high pressing force during calendaring. Thus, Baltzer cannot be modified by Mitchell to arrange thicker yarns to the underside of the cloth. Since neither Mitchell nor Baltzer disclose any thicker yarns on the underside, Baltzer and Mitchell, alone or in combination, would not have led one of ordinary skill in the art to claim 3 to set the diameter difference between the other yarns and the thicker yarns to be at least 1:1.4 or more.

Regarding claim 4, since Mitchell teaches that the reinforcing yarns 17 are in the middle of the screen cloth structure, Mitchell does not teach or suggest that the thicker yarns in the underside of the filter cloth have the same direction as a weft.

Regarding claims 9 and 12, as discussed extensively above, Mitchell does not teach or suggest channels in the bottom of the screen. Because there are no channels in the bottom of the screen in Mitchell, no channels can be directed to any direction, in contrast to the channels in the bottom of the cloth that are directed according to a structure of the filtering element as recited in claims 9 and 12.

Additionally, as discussed extensively above, Mitchell fails to teach or suggest the structure of a filter cloth having thicker yarns in the underside of the filter cloth set against a filtering element as claimed. The Patent Office relied on Baltzer as allegedly teaching a solid-liquid separation filtering apparatus. However, even if Mitchell were to have been combined with Baltzer as alleged by the Patent Office, the presently claimed subject matter still would not have been achieved because Baltzer does not remedy the deficiencies of

Mitchell. Specifically, Baltzer also does not teach or suggest thicker yarns in the underside of the filter cloth set against a filtering element as recited in claims 1, 7 and 11.

For the foregoing reasons, Applicants respectfully submit that Mitchell and Baltzer, alone or in combination, would not have led one of ordinary skill in the art to claims 1, 3-4, 7, 9 and 11-13.

B. Rejection over Baltzer in view of Mitchell and Pedersen

Claims 2, 5 and 14 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Baltzer in view of Mitchell as applied to claim 1 above, and further in view of U.S. Patent No. 4,022,596 ("Pedersen"). This rejection is respectfully traversed.

None of Mitchell, Baltzer, and Pedersen discloses the use of thicker monofilament yarns at the underside of the cloth, or that yarns parallel with the thicker yarns in the bottom and located at the thicker yarns are multifilament yarns as recited in claim 2.

Regarding claims 5 and 14, Pedersen teaches that heat-shrinkable yarns are allowed to heat shrink into a specific orientation in order to increase the thickness of the honeycomb configuration of the web. Clearly, Pedersen merely teaches that the heat-shrinkable yarns are set only to change the structure of the material. Thus, there is no motivation to modify Baltzer's structure having three screening layers, namely top screen, second screen and bottom screen, in order to increase the thickness as alleged by the Patent Office.

Additionally, as discussed extensively above, Mitchell fails to teach or suggest the structure of a filter cloth having thicker yarns in the underside of the filter cloth set against a filtering element as claimed. The Patent Office relied on Pedersen as allegedly teaching a filter cloth comprising multifilaments and having yarns that are heat-shrinkable. However, even if Pedersen were to have been combined with Mitchell and/or Baltzer as alleged by the Patent Office, the presently claimed subject matter still would not have been achieved because Pedersen does not remedy the deficiencies of Mitchell and/or Baltzer. Specifically,

Pedersen also does not teach or suggest thicker yarns in the underside of the filter cloth set against a filtering element as recited in claims 1 and 11.

For the foregoing reasons, Applicants respectfully submit that Mitchell, Baltzer, and Pedersen, alone or in combination, would not have led one of ordinary skill in the art to claims 1-2, 5, 11 and 14.

C. Rejection over Baltzer in view of Mitchell and Oksanen

Claim 6 was rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Baltzer in view of Mitchell as applied to claim 1 above, and further in view of U.S. Patent No. 6,787,492 ("Oksanen"). This rejection is respectfully traversed.

Oksanen discloses a filter cloth having a middle layer, both surfaces of which are provided with protective layers that form the outer surfaces of the filter cloth. See Oksanen, column 2, lines 10-12. Thus, Oksanen teaches attaching a protective layer to both surfaces of the filter cloth. As discussed above, Mitchell and Baltzer both fail to teach or suggest the structure of filter cloth having thicker yarns in the underside of the filter cloth set against a filtering element as claimed. The Patent Office relied on Oksanen as allegedly teaching a batt needled to the filter cloth to provide a protective layer. However, even if Oksanen were to have been combined with Mitchell and/or Baltzer, the presently claimed subject matter still would not have been achieved because Oksanen does not remedy the deficiencies of Mitchell and/or Baltzer. Specifically, Oksanen also does not teach or suggest thicker yarns in the underside of the filter cloth set against a filtering element as recited in claim 1.

For the foregoing reasons, Applicants respectfully submit that Mitchell, Baltzer, and Oksanen, alone or in combination, would not have led one of ordinary skill in the art to claims 1 and 6.

D. Rejection over Mitchell in view of Pedersen

Claim 10 was rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Mitchell in view of Pedersen. This rejection is respectfully traversed.

As discussed above, Pedersen teaches that heat-shrinkable yarns are allowed to heat shrink into a specific orientation in order to increase the thickness of the honeycomb configuration of the web. Clearly, Pedersen merely teaches that the heat-shrinkable yarns are set only to change the structure of the material. Thus, there is no motivation to modify Baltzer's structure having three screening layers, namely top screen, second screen and bottom screen, in order to increase the thickness as alleged by the Patent Office.

Additionally, as discussed extensively above, Mitchell fails to teach or suggest the structure of filter cloth having thicker yarns in the underside of the filter cloth set against a filtering element as claimed. The Patent Office relied on Pedersen as allegedly teaching a filter cloth having yarns that are heat-shrinkable. However, even if Pedersen were to have been combined with Mitchell as alleged by the Patent Office, the presently claimed subject matter still would not have been achieved because Pedersen does not remedy the deficiencies of Mitchell. Specifically, Pedersen also does not teach or suggest thicker yarns in the underside of the filter cloth set against a filtering element as recited in claim 7.

For the foregoing reasons, Applicants respectfully submit that Mitchell, Baltzer, and Pedersen, alone or in combination, would not have led one of ordinary skill in the art to claims 7 and 10.

V. Obviousness-Type Double Patenting Rejection over U.S. Patent No. 6,719,148

Claims 1-2, 7 and 12 were rejected under the judicially created doctrine of obviousness-type double patenting as allegedly being unpatentable over claims 1-3 of U.S. Patent No. 6,719,148. This rejection is respectfully traversed.

Filed herewith is a Terminal Disclaimer. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

VI. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-14 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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